

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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OFFICE OF SECRETARY

In the matter of)	
)	
Allocation of Spectrum Below)	ET Docket No. 94-32
5 GHz Transferred from Federal)	
Government Use)	

REPLY COMMENTS OF ANDREW CORPORATION

Andrew Corporation, by its undersigned counsel, hereby submits these reply comments in the above-captioned proceeding. In its initial comments in this proceeding, Andrew supported the Commission's efforts to reallocate government spectrum to private commercial uses that provide as broad a public benefit as possible. Andrew urged the Commission, however, not to introduce new, high power, licensed commercial services in the 2402-2417 MHz band. As a well-established manufacturer and designer of high quality, spectrum-efficient radio products, Andrew believes strongly that the most efficient and beneficial use of the 2402-2417 MHz band is the current commercial use already being made of that band by low power, spread spectrum Industrial, Scientific, and Medical ("ISM") devices.

Many of the commenters in this proceeding expressed similar strong concerns and opposed the introduction of new licensed services in the 2402-2417 MHz band. The number and diversity of commenters urging the Commission not to disturb existing low power operations in the 2.4 GHz band reflect that both industry and consumers have made a substantial commitment to such technologies and that important public benefits are being derived by the current commercial use of the band. Consequently, the Commission should not adopt rules that would

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disrupt and impair low power, spread spectrum operations, including mobile data services, by introducing high power, licensed services into the 2.4 GHz band.

I. CONSUMERS AND MANUFACTURERS WILL SUFFER IF THE 2.4 GHZ BAND IS REALLOCATED TO HIGHER POWER LICENSED SERVICES

The vast majority of commenters addressing the 2.4 GHz issue in this proceeding oppose the introduction of high power licensed services in the 2402-2417 MHz band.^{1/} The initial comments (and comments submitted in earlier stages of this proceeding) clearly demonstrate that, as a practical matter, unlicensed Part 15 devices will not be able to operate effectively in the same band as licensed services, particularly if those services are allowed to operate at higher power levels.^{2/} As a practical matter, a new licensed commercial service operating in the 2402-2417 MHz band will be required to operate at a relatively high power to overcome "noisy" conditions caused by microwave ovens, frequency hopping systems, and other ISM devices operating in that band. Unlike commercial services, many low power, short range devices are designed to tolerate the presence of other low power devices in this "noisy" environment. If the Commission introduces high power licensed services into this band, however, unlicensed

^{1/} See, e.g., Comments of 3Com Corp.; Comments of Apple Corporation; Comments of AT&T; Comments of Compaq Computer Corp.; Comments of Cincinnati Microwave; Comments of Digital Ocean, Inc.; Comments of IBM Corporation; Comments of IEEE 802, LAN MAN Standards Committee; Comments of Microsoft; Comments of Motorola, Inc.; Comments of Part 15 Coalition; Comments of Rockwell International Corporation; Comments of Standard Microsystems Corporation; Comments of Tetherless Access, Ltd.; Comments of the Utilities Telecommunications Council; Comments of Western Multiplex Corporation; Comments of Windata, Inc.; Comments of the Wireless Information Networks Forum ("WIN Forum"); Comments of Xircom, Inc.

^{2/} See, e.g., IEEE 802 LAN MAN Standards Committee, at 2; Microsoft, at 4; Xircom, at 2-3.

frequency hopping systems would have access to far less clear spectrum to use to avoid interference from other sources. Motorola, Microsoft, Rockwell International, Advanced Micro Devices, as well as the WINForum, the Part 15 Coalition, and the IEEE 802 LAN MAN Committee (representing their respective members), all agree that introduction of new licensed services in the 2.4 GHz band would substantially impair the utility of that band for unlicensed ISM devices. Either licensed services will simply overpower lower power unlicensed devices operating in the same band or they will detect interference, however slight, from the presence of incumbent low power devices, and request that such devices defer by shutting down or moving.

Many unlicensed Part 15 spread spectrum services currently occupy the 2.4 GHz band. Business users and individual consumers, as well as the manufacturing industry that serves their demand, have invested substantial time and expense in the spread spectrum technologies that exist at 2.4 GHz. In developing these technologies, manufacturers have undergone the lengthy and expensive development process associated with generating new innovative spectrum-efficient radio products.^{3/} Spread spectrum equipment and technology have already been developed at the 2.4 GHz band (in compliance with Section 15.247 of the Commission's Rules) and reallocation will impose additional development costs on users and could render some low power systems wholly inoperable.

Consistent with Andrew's comments, many parties attested to the fact that the spread spectrum low power industry has migrated to the 2.4 GHz band, in part, to accommodate

^{3/} See, e.g., AT&T, at 2; Digital Ocean, at 1; IBM, at 3-8; Xircom, at 4; Part 15 Coalition, at 5-6.

congestion perceived at the 900 MHz band. Further, many parties shared Andrew's experience that the manufacturing industry and users have been encouraged to leave the 900 MHz frequencies to seek a new, more suitable "spectrum home" as a result of the Commission's proceeding in PR Docket 93-61, in which the Commission proposes to adopt permanent rules that will allow wideband multilateration systems in the Location Monitoring Service ("LMS") to operate in significant segments of the 902-928 MHz band.^{4/} Together the reallocation proposals in the 900 MHz band and the 2.4 GHz band discourages users from investing in spread spectrum ISM technologies.

II. UNLICENSED SPREAD SPECTRUM OPERATIONS AT 2.4 GHZ ARE CURRENTLY DELIVERING IMPORTANT PUBLIC INTEREST BENEFITS

The opening round of Comments in this proceeding demonstrates that existing low power ISM devices at the 2.4 GHz band are delivering substantial benefits to the public. Low power access to the 2.4 GHz band has created the opportunity to develop multiple affordable spectrum-efficient technologies. In addition to high speed wireless LAN devices, devices that operate in the 2.4 GHz band include: wireless handheld computers, remote facsimile equipment, remote control systems, data broadcasting devices, etc. These products incorporate highly innovative, efficient spread spectrum technologies. The advantages of this technology have already led to extensive use by the public. Thus, no regulatory or practical purpose would be served by effectively eliminating innovative, efficient, low power technologies to make way for

^{4/} See, e.g., Comments of Microsoft Corporation, at 1, 3; Apple, at 8.

yet-to-be identified commercial services.^{5/} Valuable Part 15 uses, including mobile data applications, will enhance public access to advanced communications. Thus, innovative wireless technologies will support the policy goals articulated by both the FCC and Vice President Gore in connection with furthering the implementation of the national information infrastructure ("NII").^{6/}

III. THE PROPOSED 2.4 GHZ REALLOCATION TO NEW HIGH POWER, LICENSED SERVICES WILL NOT MEET THE COMMISSION'S PUBLIC INTEREST GOALS

Many commenting parties shared Andrew's concern that the Commission's overarching public interest goals in this proceeding -- to create new jobs, foster economic growth, improve access to communications by industry and the public -- will not be served by limiting the utility of the 2402-2417 MHz band for low power spread spectrum operations.^{7/} Moreover, numerous parties echoed Andrew's view that the reallocation proposal for the 2.4 GHz band will undermine important standardization efforts that, if completed, will enhance the global market for U.S. products.^{8/} Pursuant to a new IEEE standard, U.S. manufacturers have developed equipment in this frequency range for export. Numerous parties recognized that the Commission should seek to encourage U.S. compatibility with international standards by ensuring unimpaired low power operations throughout the 2400 to 2500 MHz band. The current and projected

^{5/} See also Motorola, at 10-11.

^{6/} See, e.g., Advanced Micro Devices, at 3-4; Compaq, at 3-8.

^{7/} See, e.g., Microsoft, at 4-6; 3Com Corp., at 3-4.

^{8/} See, e.g., IEEE LAN MAN Standard Committee, at 2-3; Digital Ocean, at 1; Part 15 Coalition, at 7-8; Motorola, at 12-13.

expanded use of the 2.4 GHz band by unlicensed low power operations easily satisfies the Commission's stated goals.

Some parties also suggested that the Commission increase revenues by creating new opportunities for competitive bidding. However, the Part 15 Coalition and Western Multiplex point out that many companies will recognize that extensive incumbent operations exist in the 2.4 GHz band and, as a result, may refrain from bidding.^{9/} Thus, the Commission should be aware that the presence of low power devices currently operating or expected in that band may discourage bidders and limit the amount of revenue obtained from license auctions.

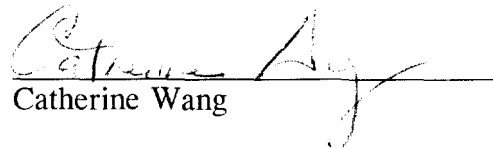
CONCLUSION

For the reasons discussed above, Andrew Corporation respectfully urges the Commission not to establish new, higher power, licensed service that would impair unlicensed operations in the 2402-2417 MHz band.

Respectfully submitted,

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^{9/} See, e.g., Part 15 Coalition, at 4-5; Western Multiplex, at 3-4.